Emerging Trends in Crowd Science

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Abstract

This minitrack overviews the emerging trends in crowd science. Specifically, this session investigates the nexus of crowd science and innovation. Three papers with different methodologies and theoretical lenses challenge conventional thought and offer new academic research topics.

1. Introduction

IT-mediated crowds are being implemented for multifarious purposes, using multifarious techniques. In this mini-track we seek to coalesce a specific and enduring community of IS and IS-related researchers focused on the study of IT-mediated crowds as a phenomenon. The very broad inter-disciplinary study of IT- mediated crowds within the IS discipline proper, and to incite a sharing of results, and a cross-pollination of ideas among researchers currently looking at IT-mediated crowds from IS, I- School, HCI, Computer Science, Marketing, Education, Natural Sciences, Communication, and Technology Innovation perspectives. The three papers included in this mini-track center around crowdsourcing and innovation.

Zaggl and colleagues discuss online crowdsourcing, widely used for problem-solving and innovation. By building on information processing theory Zaggl and colleagues present a perspective that describes innovation challenges as virtual places in which ideas are not simply submitted or commented upon but knowledge is integrated. Their perspective suggests that three types of knowledge affect the quality of integrative solutions: elementary ideas, facts, and analogical examples. They expand the research on online crowdsourcing innovation challenges to include how crowd participants influence the quality of solutions through the content of their postings.

Sun and colleagues investigate how to enable members of online temporary crowds to maintain knowledge integration and innovation remains underexplored. This study reveals the ways in which online crowd members collectively generate more innovative and serial integrative solutions to crowdsourced open innovation challenges. Their findings suggest that managers who seek to generate knowledge integration and innovation should endeavor to implement systems that afford high-level communicative participation, as well as encourage crowd members to make their diverse knowledge explicit while minimizing their cognitive load in knowledge sharing.

Bumann and Teigland found that organizations are increasingly using digital technologies, such as crowdsourcing platforms and machine learning, to tackle innovation challenges. These technologies often require the combination of heterogeneous technical and domain-specific knowledge from diverse actors to achieve the organization's innovation goals. This paper investigates the following: What are the challenges to knowledge combination in domain-specific ML-based crowdsourcing? Baumann and Teigland conducted a case study of an environmental challenge and offer recommendations on how to integrate crowdsourcing into domain-specific digital innovation processes.

References

Bumann, A. and Teigland, R. "The Challenges of Knowledge Combination in ML-based Crowdsourcing – The ODF Killer Shrimp Challenge using ML and Kaggle," HICSS 2021

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URI: https://hdl.handle.net/10125/71214
978-0-9981331-4-0